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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,795	11/17/2003	Timothy A. Stewart	P1219P1C1	5748

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EXAMINER	
CHERNYSHEV, OLGA N	
ART UNIT	**PAPER NUMBER**
1646	

DATE MAILED: 07/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/715,795	STEWART ET AL.	
	Examiner	Art Unit	
	Olga N. Chernyshev	1646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/5/4*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of the claims

1. Claims 1-21 are pending in the instant application. Claims 1-21 are under examination in the instant office action.

2. CRF submitted on November 17, 2003 contained errors corrected by STIC, see a copy of correction record attached to the instant office action. No action from Applicant is required.

Specification

3. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code (page 20, line 25 and page 24, line 7). Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

4. The use of the trademarks has been noted in this application (page 109, lines 17-18, for example). It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Applicant is advised to review the entire text of the instant specification for proper presentation of embedded hyperlinks or trademarks.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1, 5-7, 12-15 and 17-21 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an isolated nucleic molecule comprising nucleotide sequence 530-1111 of SEQ ID NO: 1, which encodes an FGF-19 polypeptide comprising amino acid sequence of 23-216 of SEQ ID NO: 2, does not reasonably provide enablement for any other isolated nucleic acid molecules specifically recited in claims 1, 5-7, 12-15 and 17-21. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Claims 1 and 5-7 are directed to isolated nucleic acid molecules having at least 80%, sequence identity with a DNA encoding a fragment 23-216 of FGF-19 polypeptide of SEQ ID NO: 2 or to a DNA comprising a fragment 550-1111 of SEQ ID NO: 1. Claims 12-15 and 17-21 encompass isolated nucleic acid molecules comprising at least 22 nucleotides of a DNA which hybridizes to a DNA molecule encoding fragment 23-216 of SEQ ID NO: 2. However, the instant specification fails to provide enough guidance for one skilled in the art on how to practice the instant invention, thereby requiring undue experimentation to discover how to make and use Applicant's invention, as currently claimed.

The factors to be considered in determining whether a disclosure would require undue experimentation include (1) the quantity of experimentation necessary, (2) the

amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art and, (8) the breadth of the claims. *In re Wands*, 8 USPQ2d, 1400 (CAFC 1988).

The nature of the invention is the disclosure of a novel polypeptide FGF-19 comprising a sequence of amino acid residues 23 to 216 of SEQ ID NO: 2, encoded by a DNA comprising the nucleotide sequence of residues 530 to 1111 of SEQ ID NO: 1, which is useful in the treatment of obesity (see pages 119-121 of the instant specification, for example). This finding appears to be novel; therefore, in order to practice the claimed invention, one skilled in the art would have to solely rely on the instant disclosure.

While the skill level in the art is high, the level of predictability is low. The instant specification, as filed fails to provide any evidence or sound scientific reasoning that would support a conclusion that every molecular embodiment specifically recited in claims 1, 5-7, 12-15 and 17-21 would also possess activities disclosed for FGF-19, as well as to present enough guidance on how to make the claimed nucleic acids and how to use the recited fragments.

Applicant's invention is predicated on the disclosure of FGF-19 polypeptide of SEQ ID NO: 2, administration of which affects food intake in mice. Applicant further extrapolates this result into assertion that other molecular embodiments with limited structure similarity to SEQ ID NO: 2 would also possess the same function. Accordingly, it would appear that Applicant provides a single finding (the finding), and then presents an invitation to experiment to determine which isolated nucleic acid molecules having at least 80% sequence identity with a DNA encoding a fragment 23-21 of FGF-19

polypeptide of SEQ ID NO: 2 or to a DNA comprising a fragment 550-1111 of SEQ ID NO: 1 also have activity of FGF-19, and then further discover how to make and use the claimed nucleic acids.

A patent is granted for a completed invention, not the general suggestion of an idea and how that idea might be developed into the claimed invention. In the decision of *Genentec, Inc, v. Novo Nordisk*, 42 USPQ 2d 100,(CAFC 1997), the court held that: "[p]atent protection is granted in return for an enabling disclosure of an invention, not for vague intimations of general ideas that may or may not be workable" and that "[t]ossing out the mere germ of an idea does not constitute enabling disclosure". The court further stated that "when there is no disclosure of any specific starting material or of any of the conditions under which a process is to be carried out, undue experimentation is required; there is a failure to meet the enablement requirements that cannot be rectified by asserting that all the disclosure related to the process is within the skill of the art", "[i]t is the specification, not the knowledge of one skilled in the art, that must supply the novel aspects of an invention in order to constitute adequate enablement".

The instant specification is not enabling because one can not following the guidance presented therein and practice the claimed method without first making a substantial inventive contribution.

6. Claims 1, 5-7, 12-15 and 17-21 are further rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1, 5-7 are directed to isolated nucleic acid molecules having at least 80%, sequence identity with a DNA encoding a fragment 23-216 of FGF-19 polypeptide of SEQ ID NO: 2 or to a DNA comprising a fragment 550-1111 of SEQ ID NO: 1. Claims 12-15 and 17-21 encompass isolated nucleic acid molecules comprising at least 22 nucleotides of a DNA which hybridizes to DNA encoding fragment 23-216 of SEQ ID NO: 2. The claims do not require that the claimed polynucleotides possess any particular conserved structure, or other disclosed distinguishing feature. Thus, the claims are drawn to a genus of nucleic acids that is defined only by sequence identity. However, the instant specification fails to describe the entire genus of nucleic acid molecules, which are encompassed by these claims. In making a determination of whether the application complies with the written description requirement of 35 U.S.C. 112, first paragraph, it is necessary to understand what Applicant has possession of and what Applicant is claiming. From the specification, it is clear that Applicant has possession of a nucleic acid molecule which encodes a protein which has the amino acid sequence of SEQ ID NO: 2. This nucleic acid molecule has a nucleic acid sequence of SEQ ID NO: 1 and is contained within ATCC deposit #209480 (DNA49435-1219). The claims are drawn to isolated nucleic acid molecules having at least 80% sequence identity with a DNA encoding fragment 23-216 of SEQ ID NO: 2, or to a DNA comprising a fragment 550-1111 of SEQ ID NO: 1, or to fragments of at least 22 nucleotides of a DNA encoding fragment 23-216 of SEQ ID NO: 2. Thus, the claims are not limited to a nucleic acid molecule with a specific nucleic acid sequence. The claims only require the claimed polynucleotides to share some degree of structural similarity to the isolated nucleic acid of SEQ ID NO: 1. The specification only describes a nucleic acid comprising sequence

530-1111 of SEQ ID NO: 1 and fails to teach or describe any other nucleic acid sequence which lacks the disclosed sequence of SEQ ID NO: 1 and encodes a protein, which has any association with FGF-19.

To provide adequate written description and evidence of possession of a claimed genus, the specification must provide sufficient distinguishing identifying characteristics of the genus. The factors to be considered include disclosure of complete or partial structure, physical and/or chemical properties, functional characteristics, structure/function correlation, methods of making the claimed product, or any combination thereof. In this case, the only factor present in the claim is a partial structure in the form of a recitation of percent identity. There is not even identification of any particular portion of the structure that must be conserved. The specification does not provide a complete structure of those isolated nucleic acid molecules with limited structural similarity to a DNA of SEQ ID NO: 1 and fails to provide a representative number of species for the claimed genus. Accordingly, in the absence of sufficient recitation of distinguishing identifying characteristics, the specification does not provide adequate written description of the claimed genus.

Vas-Cath Inc. v. Mahurkar, 19USPQ2d 1111, clearly states "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed.*" (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See *Vas-Cath* at page 1116). As discussed above, the skilled artisan cannot envision the detailed chemical structure of the encompassed genus of

polynucleotides, and therefore conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method of isolating it. The compound itself is required. See *Fiers v. Revel*, 25 USPQ2d 1601 at 1606 (CAFC 1993) and *Amgen Inc. v. Chugai Pharmaceutical Co. Ltd.*, 18 USPQ2d 1016.

One cannot describe what one has not conceived. See *Fiddes v. Baird*, 30 USPQ2d 1481 at 1483. In *Fiddes*, claims directed to mammalian FGF's were found to be unpatentable due to lack of written description for that broad class. The specification provided only the bovine sequence.

Therefore, only isolated polynucleotide comprising a DNA molecule of 530-1111 of SEQ ID NO: 1 encoding an FGF-19 polypeptide comprising an amino acid sequence of 23-216 of SEQ ID NO: 2, but not the full breadth of the claim meets the written description provision of 35 U.S.C. §112, first paragraph. Applicant is reminded that *Vas-Cath* makes clear that the written description provision of 35 U.S.C. §112 is severable from its enablement provision (see page 1115).

7. Claim 21 is also rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a process for producing an FGF-19 polypeptide by culturing a host cell comprising an isolated nucleic acid molecule that hybridizes to a compliment of a nucleic acid molecule encoding FGF-19 protein, does not reasonably provide enablement for a process for producing an FGF-19 polypeptide by culturing a host cell comprising an isolated nucleic acid molecule that hybridizes to a nucleic acid molecule encoding FGF-19 protein. The specification does not enable any person skilled

in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

Claim 21 is directed to a process for producing an FGF-19 polypeptide by culturing a host cell comprising an isolated nucleic acid molecule comprising at least 22 nucleotides, such nucleic acid that hybridizes to a nucleic acid molecule encoding FGF-19 protein. The instant specification fails to provide any teachings on how to produce a protein, which is encoded by a nucleic acid molecule that hybridizes to the nucleic acid molecule encoding that same protein. The prior art does not describe any protocol on how to produce the product, as claimed. Therefore, it would require undue experimentation and making a substantial inventive contribution for one skilled in the art before being able to successfully practice Applicant invention, as currently claimed. Moreover, the instant specification fails to provide any evidence or sound scientific reasoning to support a conclusion that any isolated nucleic acid comprising at least 22 nucleotides which hybridize to a DNA encoding a polypeptide of SEQ ID NO: 2, would encode a FGF-19 polypeptide.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-8, 10-15 and 17-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claims 1, 4, 9, 10 and 12 are vague and indefinite in their recitation of limitation "about 1 or about 23 to about 216 amino acids". Even though the term "about" in a claim

is inherently vague and indefinite, its use is appropriate when employed to limit a value which is composed of indefinitely divisible units such as inches, meters, grams and pints, where it is impractical to produce an item which has exactly the dimension recited. Even if one could practically produce an item which is exactly 1 inch in length, the length of that item is conditional upon the temperature at which it is measured. However, when defining an invention in terms of indivisible numerical units such as the number of nucleotides in a nucleic acid, the number of amino acids in a polypeptide or the number of legs on a chair or table, the term "about" is unacceptably vague and indefinite since it is practical to employ a term, which possesses the required precision. If, for example, it is Applicant's intension that the claims should encompass a polypeptide of more than a certain amount of acids in length then this is exactly what the claim should recite. Whereas one would reasonably interpret the term "about one inch" as encompassing any value from 0.90 inches to 1.10 inches one would not know if the term "about 23 to about 216 amino acids" would exclude 22 or 24 to 215 or 217 amino acids.

10. Claim 2 is vague and ambiguous for reciting "the sequence of nucleotide positions". The metes and bounds of "nucleotide positions" cannot be determined from the claim. Further, the claim is indefinite for recitation of "about 464 or about 1111" (for explanations see section 9 of the instant office action.).

11. Claims 5 and 7 are vague and ambiguous for recitation "DNA which comprises at least about 80% sequence identity to [(a)] a DNA". It appears that DNA itself cannot comprise identity, which is a quality and not a material limitation. Applicant is advised that recitation "DNA having at least 80% sequence identity", for example, would obviate this ground of rejection.

12. Claims 11 and 12 are indefinite and ambiguous for recitation of hybridization "under stringent conditions". Without providing a precise set of hybridization conditions, in the claim or the specification, the metes and bounds of the claimed isolated nucleic acid molecule cannot be defined.

13. Claims 3, 6, 8, 13 and 14-15 and 17-21 are indefinite for being dependent from the indefinite claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claim 9 is rejected under 35 U.S.C. 102(b) as being anticipated by Baird et al. (1990, Handbook of Exp. Pharmacology, Chapter 7, 95 (1), pp. 369-419, reference.10 of IDS submitted on April 05, 2004).

Claim 9 encompasses an isolated nucleic acid molecule that hybridizes to the compliment of the nucleic acid sequence that encodes a polypeptide of SEQ ID NO: 2. Without providing hybridization conditions and definition of "FGF-19 polypeptide" any nucleic acid, encoding a fibroblast growth factor would anticipate the nucleic acid of claim 9. Baird et al. teach acidic and basic fibroblast growth factors providing their amino acid sequences. Therefore, a nucleic acid encoding, for example, basic fibroblast growth factor, anticipates a nucleic acid of claim 9.

Conclusion

15. No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olga N. Chernyshev whose telephone number is (571) 272-0870. The examiner can normally be reached on Monday to Friday 9 AM to 5 PM ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brenda Brumback can be reached on (571) 272-0961. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Certain papers related to this application may be submitted to Technology Center 1600 by facsimile transmission. Papers should be faxed to Technology Center 1600 via the PTO Fax center located in Crystal Mall 1 (CM1). The faxing of such papers must conform with the notices published in the Official Gazette, 1156 OG 61 (November 16, 1993) and 1157 OG 94 (December 28, 1993) (see 37 C.F.R. § 1.6(d)0. NOTE: If Applicant *does* submit a paper by fax, the original signed copy should be retained by Applicant or Applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED so as to avoid the processing of duplicate papers.

Official papers filed by fax should be directed to (703) 872-9306. If this number is out of service, please call the Group receptionist for an alternative number. Faxed draft or informal communications with the examiner should be directed to (571) 273-0870. Official papers should NOT be faxed to (571) 273-0870.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Olga N. Chernyshev, Ph.D.

OLGA N. CHERNYSHEV, PH.D.
PATENT EXAMINER